



## PERMIT FACT SHEET

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### UIC General Permit for Short-Term Remediation (six months or less) - #GU07RS002

#### Permit Name

#### UIC General Permit for Short-Term Remediation (six months or less)

- up to 4% hydrogen peroxide ( $H_2O_2$ );
- Oxygen Release Compound (ORC<sup>®</sup>) and/or ORC-Advanced<sup>®</sup>;
- Hydrogen Release Compound (HRC<sup>®</sup>) Primer and/or HRC<sup>®</sup>; and/or
- sodium thiosulfate to dechlorinate potable water used for injection.

#### Who must apply?

Pursuant to NRS 445A.465, except as authorized by a permit, it is unlawful for any person to inject fluids through a well into any waters of the state (aquifer) and discharge from a point source a pollutant or inject fluids through a well that could be carried into the waters of the state by any means (including the unsaturated zone above waters of the state).

NAC 445A.8355 and NAC 445A.838 define a well as:

- A bored, drilled or driven shaft with a depth greater than the largest surface dimension;
- A hole which is dug, with a depth greater than the largest surface dimension;
- An improved sinkhole; or
- A subsurface fluid distribution system - an assemblage of perforated pipes, drain tiles or other similar mechanisms intended to distribute fluids below the surface of the ground.

NAC 445A.849, defines a Class 5 well to include injection wells used to inject fluids for the chemical or microbiological treatment of contaminated groundwater or soil.

#### How long is the permit valid?

Coverage under the UIC General Permit for Short-Term Remediation is valid for six months. The permit starts when the application is approved and the permit is issued an individual identification number. The UIC General Permit for Short-Term Remediation will be issued only once for a site.

#### EPA Well Code

**5X26** Aquifer Remediation Related Wells (including subsurface fluid distribution systems)

#### Synopsis

Applicants or existing Permittees may include owners of gasoline stations and leaking underground storage tanks (LUST) due to release of petroleum hydrocarbons to groundwater. The primary Contaminants of Concern (COCs) include benzene, toluene, ethylbenzene, total xylenes (BTEX) and/or methyl tert butyl ether (MTBE).

Injection of up to a 4 % solution of hydrogen peroxide, Oxygen Release Compound (ORC<sup>®</sup>), and/or ORC-Advanced<sup>®</sup> serves as an oxygen source for microbes in the subsurface to enhance biodegradation of these contaminants. The active ingredient in ORC-Advanced<sup>®</sup> is phosphate-intercalated magnesium peroxide.

Other applicants may include industries that utilize chlorinated solvents (including auto repair shops and dry cleaners). The primary COCs may include tetrachloroethene (PCE); trichloroethene (TCE); 1,2-dichloroethene (1,2-DCE); and vinyl chloride (VC). Hydrogen Release Compound (HRC<sup>®</sup>) Primer and/or HRC<sup>®</sup> are used for anaerobic reductive dechlorination. This is a degradation reaction in which bacteria gain energy and grow as one or more chlorine atoms on a chlorinated hydrocarbon are replaced with hydrogen. The active ingredients in HRC<sup>®</sup> Primer are glycerol tripoly lactate and lactic acid.

### Injection Limitation for Free Product

In order to prevent contamination from spreading, injection will not be allowed into wells that have any observance of Light Non-Aqueous Phase Liquid (LNAPL or “free product”) or Dense Non-Aqueous Phase Liquid (DNAPL) within the last 3 months at the site. The State of Nevada Action Level for free product is ½ inch.

A groundwater remediation Workplan will be required, and the Letter of Concurrence by the Bureau of Corrective Action’s or District Health Department’s Case Officer is required with the application. **Due to the short time span of this permit, monitoring will not be required.**

### Injection Volume Limitations

The two General Permits for remediation allow the following injection volumes for (up to) 4% hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>):

- a maximum injection of 325 gallons per well per month;
- a maximum injection of 7,600 gallons per quarter per site; and
- a maximum injection of 1,000 gallons per month into an open excavation or injection gallery.

These limitations were established following a statistical analysis of 64 UIC permits in April of 2004 that utilize up to 4% H<sub>2</sub>O<sub>2</sub> for injection. The maximum injection volumes were established so that 95% of the existing permits met the criteria. For those projects that require additional volumes, an UIC UNEV permit will be required.

Injection volume limitations were not established for ORC<sup>®</sup> or HRC<sup>®</sup>. The injection volume will be determined on a site-specific basis that will require concurrence by the Case Officer.

### Drinking Water Standards

Federal and State Drinking Water Standards and State Action Levels are used as the remediation standards for all UIC permits.

Constituent	Drinking Water Standard
Benzene	5 ppb (State and Federal Limit)
Toluene	1,000 ppb (State and Federal Limit)
Ethylbenzene	700 ppb (State and Federal Limit)
Xylenes (total)	10,000 ppb (State and Federal Limit)
MTBE	20* or 200 ppb (Site Specific Target Level)
PCE	5 ppb (State and Federal Limit)
TCE	5 ppb (State and Federal Limit)
cis-1,2-dichloroethene	70 ppb (State and Federal Limit)
Vinyl chloride	2 ppb (State and Federal Limit)
Non-Aqueous Phase Liquid	½ inch of free product (State Limit)

\* The Site Specific Target Level for MTBE is 20 ppb when sensitive receptors are located within 1,000 feet of the site.

**Procedures for  
Public Comment**

The Notice of the Division's intent to issue the UIC General Permit for Short-Term Remediation (six months or less) authorizing the facility to inject specific compounds into the groundwater of the State of Nevada will be sent to newspapers throughout the state including the Elko Daily Free Press, Humboldt Sun, Las Vegas Review Journal, Nevada Appeal, and the Reno Gazette Journal.

The notice will be mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the publication date of the said public notice. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected state, any affected interstate agency, the regional administrator of EPA Region IX or any interested agency, person or group of persons.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

**Proposed  
Determination**

The Division has made the tentative determination to issue the UIC General Permit for Short-Term remediation for five years.

**Proposed Limitations and Special Conditions for Short-Term Remediation****TABLE 1**

PARAMETER	FREQUENCY	LOCATION	LIMITATIONS
Free-phase Hydrocarbon Product (LNAPL) Thickness and/or DNAPL	Quarterly ( <b>all observations during the quarter</b> )	All injection and monitoring wells	<b>Injection shall not occur in a well that has had free product (LNAPL and/or DNAPL) during the previous 3 months.</b>
Hydrogen Peroxide, ORC <sup>®</sup> , HRC <sup>®</sup> and/or Sodium thiosulfate: Concentration or Mass, Volume, Date Injected	Each injection event	All injection wells	Up to a 4 % H <sub>2</sub> O <sub>2</sub> solution - maximum of 325 gallons/well per month and maximum of 7,600 gallons/quarter per site. <b>Injection shall not occur in a well that has had free product (LNAPL and/or DNAPL) during the previous 3 months.</b>
Hydrogen Peroxide, ORC <sup>®</sup> , HRC <sup>®</sup> and/or Sodium thiosulfate: Concentration or Mass, Volume, Date Injected	Each injection event	Open excavation or injection gallery	Up to 1,000 gallons of 4 % H <sub>2</sub> O <sub>2</sub> solution per month for a maximum of 7,600 gallons per quarter per site.

**Rationale for  
Permit  
Requirements**

The permit conditions will help to ensure that the injectate does not adversely affect the existing water quality or hydrologic regime.

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**DRAFT**